

Appl. Serial No.: 10/673,989
Amendment dated November 28, 2005
Reply to Office action of July 26, 2005

AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings include changes to FIG. 7. This sheet, which includes FIGS. 1 and 7, replaces the original sheet including FIGS. 1 and 7. In FIG. 7, previously omitted reference character 212 has been added.

Attachment: Replacement Sheet

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REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application. Applicants note that a Request for Continued Examination under 37 C.F.R. § 1.114 is included with this paper.

Claims 2-10, 13-40, and 42-45 remain in the application, with claims 22-40 being withdrawn from consideration. In the Office Action mailed July 26, 2005, all of the claims under consideration, claims 1-21 and 42-45, were rejected under various statutory ground, described below. By this amendment, claims 2, 13, 42, and 44 have been amended to more clearly define the invention. The subject application supports these amendments and no new matter has been added. Claims 1, 11-12, and 41 have been cancelled.

1. Drawing Objection

Concerning item 1 of the Office Action, the Examiner objected to the drawings under 37 C.F.R. § 1.83(a), indicating that the structure of the slide plate having passageways must be shown or the feature cancelled from the claims. Applicants respectfully point out that the passageways are shown in the drawings as filed, e.g., as passageways 212 in FIGS. 8, 9, 13, and 14, as passageway 312 in Fig. 15, passageway 412 in Fig. 16, and passageway 512 in FIG. 17. The passageways were also shown in FIG. 7 as filed but did not include corresponding reference characters. For clarity, FIG. 7 has been amended to include reference characters 212 for the passageways shown. (Applicants note that the attached replacement sheet, marked as such, reflects the original title and not the proposed amended title, discussed below.)

2. Specification

Concerning item 2 of the Office Action, the Examiner required that the word "Improved" be

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removed from the title of the application. By the amendment to the specification, above, the title is amended accordingly to read "VALVE ASSEMBLY HAVING NOVEL FLOW CHARACTERISTICS", rendering the objection moot.

3. Claim Rejections

35 U.S.C. § 112, ¶ 1

Concerning items 3-4 of the Office Action, claims 1-21 and 42-45 were rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement regarding explanation of the passageways in relation to the conductance. Applicants believe the term "conductance" has clear meaning in the art. However, in order to expedite prosecution of this application, claim 2 has been amended to replace "conductance" with "fluid flow through the flow channel" for clarity, rendering the rejection moot. This amendment is supported by the application as filed, e.g., at least in paragraph (007) and FIG. 12.

In item 4 of the Office Action, the Examiner remarked that Amendment "B" discussed the prior art of FIGS. 3-4 when addressing item 4 of the previous Office Action (mailed February 24, 2005). The referenced portion of Amendment "B" explained the compound motion of a pendulum valve and was given in response to the Examiner's request: "Please explain more clearly how there is conductance (flow) when there is no real flow anyway." Further clarification as to how the flow characteristic of conductance/flow is given below.

As explained in the specification as filed at paragraph (043), for certain embodiments, "The second surface 208 [of the seal ring] includes a continuous annular sealing portion 210 for contacting the slide plate 26 when the seal ring 200 is biased against the slide plate 26, so that a fluid-tight seal can be formed between the continuous annular sealing portion and the slide plate 26." Thus, the unobstructed passageways influence or effect increased flow as the slide gate moves in the axial

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direction between the soft and hard closed positions as shown by the volumetric flow rates (liters/second) in FIG. 12 as compared to the prior art flow rates indicated in FIG. 6.

One of skill in the art would therefore understand that the Applicants had possession of the present invention at the time the application was filed. The rejection should accordingly be withdrawn.

35 U.S.C. § 112, ¶ 2

Concerning items 5-6 of the Office Action, claims 16-20 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite regarding how the claimed fasteners are usable/used in the invention. Applicants respectfully traverse this rejection for the following reasons.

Applicants point out that a suitable fastener can include a pin or dowel attached to annular piston 54, as described in the specification as filed and amended, e.g., paragraph (045), and as described in U.S. Patent No. 6,863,256, which was incorporated in its entirety into the subject application. Each such fastener can extend through a bore formed through a portion of the housing from annular chamber 52 to the valve seat 22 so that a distal portion of the fastener contacts, e.g., is received by, the seal ring. This is described in the specification as filed at, for example, paragraphs (039) and (045). Furthermore, Applicants point out that paragraph (045) references FIG. 8 and structure shown therein regarding the operation of the fasteners: "The passageways 212 are preferably positioned between portions of the seal ring 200 that secure to the fasteners of the annular piston 54, such that the attachment points of the seal ring remain strong." FIG. 8 clearly shows these locations (dark circles on second surface 208) where the fasteners attach to the seal ring.

Thus, Applicants respectfully submit that claims 16-20 are definite, and request that the rejection be withdrawn accordingly.

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35 U.S.C. § 102

Concerning items 7-8 of the Office Action, claims 1, 8-9, and 42-43 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,401,915 to Kim ("Kim"). Claim 1 has been cancelled by the present amendment, rendering this rejection moot as to claim 1. Applicants traverse this rejection as applied to claims 8-9 and 42-43 for the following reasons.

Amended independent claim 2, from which claims 8-9 and 42-43 depend either directly or indirectly, recites:

A valve assembly comprising:

a housing having a flow channel and an annular surface surrounding the flow channel so as to define an axis of the flow channel;

a slide plate located in the housing and movable (a) transversely to the axis of the flow channel between an open position, wherein the slide plate allows flow through the flow channel and does not block the cross section of the flow channel along the axis of the flow channel, and a soft closed position, wherein the slide plate is located within the cross section of the flow channel, and (b) axially along the axis of the flow channel from the soft closed position to a hard closed position, wherein the flow through the flow channel is blocked; and

a seal ring positioned between the annular surface of the housing and the slide plate, wherein the seal ring includes a first side extending generally parallel with the axis of the flow path, a second side spaced radially outwardly from the first side and extending generally parallel with the axis of the flow path, a first surface extending between the first and the second sides and facing towards the annular surface of the housing, and a second surface axially spaced from the first surface and extending between the first and the second sides and facing towards the slide plate, wherein the second surface includes a continuous annular sealing portion for contacting the slide plate when the seal ring is positioned against the slide plate when

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the slide plate is located in the hard closed position, so that a fluid-tight seal can be formed between the continuous annular sealing portion and the slide plate when the slide plate is in the hard closed position, and at least one unobstructed passageway is positioned between the annular sealing portion and the second side of the seal ring for increasing fluid flow through the flow channel between the seal ring and the slide plate as the slide plate moves between the soft closed position and the hard closed position. [Emphasis added]

In contrast, Kim is directed to a prior art gate valve in which the valve undergoes only one type of motion, i.e., motion linearly up or down and transverse to the flow within the associated piping 13. The valve gate 14 of Kim does not undergo any appreciable movement along the longitudinal axis of the flow channel. Consequently, Kim does not teach or suggest all of the limitations of amended claim 2, e.g., "a slide plate located in the housing and movable transversely to an axis of the flow channel between an open position, wherein the slide plate allows flow through the flow channel and does not block the cross section of the flow channel along the axis of the flow channel, and a soft closed position, wherein the slide plate is located within the cross section of the flow channel, and (b) axially along the axis of the flow channel from the soft closed position to a hard closed position, wherein the flow through the flow channel is blocked." Claim 2 is therefore patentable over Kim. Because claims 8-9 and 42-43 depend from and add further limitations to claim 2, they are patentable for at least the same reasons as claim 2. Thus, Kim is an improper basis for a rejection under 35 U.S.C. § 102 as applied to claims 8-9 and 42-43, and the rejection should be withdrawn accordingly.

Applicants also note that in previous Amendment "B," claim 2 was rewritten in independent form to include the limitations of claim 1. That amendment to claim 2 was in response to the Examiner's indication in the Office Action of February 24, 2005 (at items 13-14) that claims 2-7 and 10 would be allowable if rewritten in independent form.

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Concerning item 9 of the Office Action, claims 1, 8-9, 11-13, 21, and 44 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,577,707 to Brida ("Brida"). By the present amendment claims 1, and 11-12 have been cancelled, rendering the rejection moot for these claims. Applicant traverse this rejection as applied to claims 8-9, 13, 21, and 44 for the following reasons.

Amended independent claim 2, from which claims 8-9, 13, 21, and 44 depend either directly or indirectly, recites:

A valve assembly comprising:

a housing having a flow channel and an annular surface surrounding the flow channel so as to define an axis of the flow channel;

a slide plate located in the housing and movable (a) transversely to the axis of the flow channel between an open position, wherein the slide plate allows flow through the flow channel and does not block the cross section of the flow channel along the axis of the flow channel, and a soft closed position, wherein the slide plate is located within the cross section of the flow channel, and (b) axially along the axis of the flow channel from the soft closed position to a hard closed position, wherein the flow through the flow channel is blocked; and

a seal ring positioned between the annular surface of the housing and the slide plate, wherein the seal ring includes a first side extending generally parallel with the axis of the flow path, a second side spaced radially outwardly from the first side and extending generally parallel with the axis of the flow path, a first surface extending between the first and the second sides and facing towards the annular surface of the housing, and a second surface axially spaced from the first surface and extending between the first and the second sides and facing towards the slide plate, wherein the second surface includes a continuous annular sealing portion for contacting the slide plate when the seal ring is positioned against the slide plate when the slide plate is located in the hard closed position, so that a fluid-tight seal can be formed between the continuous annular sealing portion and the slide plate when the slide plate is in the hard closed position; and at least one unobstructed passageway is

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positioned between the annular sealing portion and the second side of the seal ring for increasing fluid flow through the flow channel between the seal ring and the slide plate as the slide plate moves between the soft closed position and the hard closed position. [Emphasis added]

In contrast, Brida teaches a pendulum valve that does not include any unobstructed passageways for increasing the fluid flow through the flow channel between the seal ring and the slide plate. For this rejection, the Examiner stated that Brida "includes at least one unobstructed passageway (FIG. 3, slide plate 9 has a passageway on the right side) for increasing conductance between the slide plate and the seal ring prior to the seal ring contacting the slide plate." Applicants respectfully take issue with this characterization of Brida, as the reduced-thickness portion of slide plate 9 is configured to begin precisely at the innermost face (radially inward) of the seal ring in the closed position of the valve and Brida teaches that the configuration shown in FIG. 3 corresponds to the closed position of the valve. See Brida, e.g., col. 3, lines 33-35. Because of this, as the seal ring is pushed axially into contact with the slide plate, the structure pointed to by the Examiner is not "positioned between the annular sealing portion and the second side of the seal ring" and does not increase or affect flow through the flow channel of Brida as does the structure of claim 2.

Accordingly, Brida does not teach or suggest all of the limitations as arranged in independent claim 2. Claim 2 is therefore patentable over Brida. Because claims 8-9, 13, 21, and 44 depend from and add further limitations to claim 2, they are patentable for at least the same reasons as claim 2. Thus, Brida is an improper basis for a rejection under 35 U.S.C. § 102 as applied to claims 8-9, 13, 21, and 44, and the rejection should be withdrawn.

35 U.S.C. § 103

Concerning items 10-11 of the Office Action, claims 14-15 were rejected under 35 U.S.C. §

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103(a) as being unpatentable over Brida in view of U.S. Patent No. 6,409,149 to Maher, Jr. ("Maher"). Applicants respectfully traverse this rejection because Maher is relied upon for its teaching of a cam mechanism and does not cure the deficiency noted above for Brida. Accordingly, the combination of Brida and Maher fails to teach or suggest all the limitation of 2, from which claims 14-15 depend. The combination of Brida and Maher is therefore an improper basis for a rejection under 35 U.S.C. § 103(a), and the rejection should be withdrawn.

Concerning items 12 of the Office Action, claim 45 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Brida. Applicants traverse this rejection because claim 45 depends indirectly from independent claim 2, which is patentable for the reasons described above. Accordingly, the rejection should be withdrawn.

4. Conclusion

In view of the amendments and remarks submitted herein, Applicants believe that claims 2-10, 13-21 and 42-45 in the application are in condition for allowance, and respectfully request a Notice of Allowance for the application. If a telephone conference will expedite prosecution of the application the Examiner is invited to telephone the undersigned.

Authorization is hereby given to charge our deposit account, No. 50-1133, for a one-month

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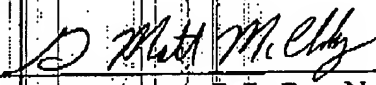
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extension of time or for any additional fees that are required, or otherwise necessary to cover any deficiency in fees already paid.

Respectfully submitted,
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